

In the claims:

1. (previously amended) A sampling instrument comprising:

a first housing comprising a needle arranged for protrusion therefrom, said needle being adapted to draw therethrough a fluid;

a reagent disposed in said first housing in fluid communication with said needle, capable of producing an optically-sensible reaction with a fluid;

an optical sensor disposed in said first housing adapted to sense said optically-sensible reaction;

a first optical waveguide in said first housing connected to said optical sensor and to a first optical connector; and

a processor disposed in a second housing in communication with said optical sensor adapted to process a signal from said optical sensor, said signal being a function of said optically-sensible reaction, wherein said processor comprises a microprocessor and a photodiode, said processor being connected to a second optical waveguide disposed in said second housing, said second optical waveguide being connected to a second optical connector which mates with said first optical connector so as to effect optical communication between said processor and said optical sensor, wherein said photodiode is adapted to convert light emission transmitted thereto from said optical waveguide to a current.

2-4. (canceled)

5. (original) The sampling instrument according to claim 1, wherein said first housing is disposable.

6. (previously amended) The sampling instrument according to claim 1, further comprising a fluid pump in fluid communication with said needle adapted to pump a biological fluid through said needle.

7. (previously amended) The sampling instrument according to claim 1, further comprising a fluid pump in fluid communication with said needle adapted to pump a biological fluid through said needle, wherein said fluid pump is disposed in said second housing.

8. (previously amended) The sampling instrument according to claim 1, wherein said first housing further comprises a waste receptacle for storing therein waste products of said optically-sensible reaction.

9. (original) The sampling instrument according to claim 1, wherein said needle is retractable into said first housing.

10. (previously amended) The sampling instrument according to claim 1, further comprising a display in communication with said processor.

11. (canceled)

12. (original) The sampling instrument according to claim 1, further comprising at least one of a transmitter and a receiver for wireless communication with an external device.

13. (previously amended) The sampling instrument according to claim 1, wherein said first and second housings together form an elongate housing.

14. (previously amended) The sampling instrument according to claim 1, wherein said second housing is reusable.

15. (previously presented) A sampling instrument comprising:

- a disposable housing comprising a needle arranged for protrusion therefrom, said needle being adapted to draw therethrough a fluid;

- a reagent disposed in said disposable housing in fluid communication with said needle, capable of producing an optically-sensible reaction with a fluid;

- an optical sensor disposed in said disposable housing adapted to sense said optically-sensible reaction;

- a first optical waveguide in said disposable housing connected to said optical sensor and to a first optical connector;

- a processor disposed in a reusable housing in communication with said optical sensor adapted to process a signal from said optical sensor, said signal being a function of said optically-sensible reaction, wherein said processor comprises a microprocessor and a photodiode, said processor being connected to a second optical waveguide disposed in said reusable housing, said second optical waveguide being connected to a second optical connector which mates with said first optical connector so as to effect optical communication between said processor and said optical sensor, wherein said photodiode is adapted to convert light emission transmitted thereto from said optical waveguide to a current; and

- a fluid pump disposed in said reusable housing in fluid communication with said needle adapted to pump a biological fluid through said needle, wherein said disposable housing comprises a waste receptacle for storing therein waste products of said optically-sensible reaction, and a display in communication with said processor.

16. (previously presented) The sampling instrument according to claim 1, further comprising a light source adapted to transmit a light beam to said optically-sensible reaction.

17. (previously presented) The sampling instrument according to claim 16, wherein said light source is a source of coherent light.

18. (previously presented) The sampling instrument according to claim 16, wherein said light source is a source of non-coherent light.

19. (previously presented) The sampling instrument according to claim 16, wherein said light source is disposed in said second housing and is adapted to transmit the light beam to said optically-sensible reaction via said second optical waveguide to said first optical waveguide, via said second optical connector which mates with said first optical connector.

20. (previously presented) The sampling instrument according to claim 16, wherein said optical sensor comprises a surface plasmon resonance sensor.

21. (new) A method of using a sampling instrument comprising:

(a) providing a sampling instrument comprising:

a first housing comprising a needle arranged for protrusion therefrom, said needle being adapted to draw therethrough a fluid;

a reagent disposed in said first housing in fluid communication with said needle, capable of producing an optically-sensible reaction with a fluid;

an optical sensor disposed in said first housing adapted to sense said optically-sensible reaction;

a first optical waveguide in said first housing connected to said optical sensor and to a first optical connector;

a light source adapted to transmit a light beam to said optically-sensible reaction, wherein said light source is disposed in said second housing and is adapted to transmit the light beam to said optically-sensible reaction via said second optical waveguide to said first optical waveguide, via said second optical connector which mates with said first optical connector;

a processor disposed in a second housing in communication with said optical sensor adapted to process a signal from said optical sensor, said signal being a function of said optically-sensible reaction, wherein said processor comprises a microprocessor and a photodiode, said processor being connected to a second optical waveguide disposed in said second housing, said second optical waveguide being connected to a second optical connector which mates with said first optical connector so as to effect optical communication between said processor and said optical sensor, wherein said photodiode is adapted to convert light emission transmitted thereto from said optical waveguide to a current; and

- a display in communication with said processor;
- (b) using said needle to draw therethrough a fluid;
- (c) producing an optically-sensible reaction with the fluid with said reagent that is disposed in said first housing;
- (d) using said light source to transmit the light beam to said optically-sensible reaction;
- (e) sensing said optically-sensible reaction with said optical sensor that is disposed in said first housing;
- (f) using said processor that is disposed in the second housing to process a signal from said optical sensor, said signal being a function of said optically-sensible reaction, wherein said first and second optical waveguides optically connect said optical sensor to said processor;
- (g) displaying a result of processing the signal on said display;
- (h) disposing said first housing; and
- (i) re-using said second housing by connecting another said first housing to said second housing and repeating steps (b)-(g).